ALBUQUERQUE / BERNALILLO COUNTY
AIR QUALITY CONTROL BOARD
NEWSLETTER

Martin J. Chávez, Mayor

Thaddeus Lucero,
Bernalillo County Manager

The Air Shed

PUBLISHED MONTHLY BY THE AIR QUALITY DIVISION

Air Quality Division News

JULY'S AIR QUALITY INDEX:

GOOD!

FOR ACTUAL AQI VALUES, SEE PAGE 5

July-August, 2004 Volume 5, Number 7

City of Albuquerque
Environmental Health Department
Director - 768-2600

Albuquerque / Bernalillo County Air Quality Control Board
768-2600

Air Quality Division Manager
768-1930

Important Phone Numbers
Air Quality Index & Pollen
768-4731 opt 1 or 766-7664
Burn/No Burn 768-BURN (2876)

Ambient Air Monitoring - 768-1969
- National Ambient Air Quality Standards
- AQI & Seasonal Pollen

Compliance & Field Enforcement - 768-1930
- Facility Inspection
- Topsoil Disturbance
- Compliance Assurance
- Asbestos Abatement
- Open Burn Permits
- Woodburning Exemptions

Education, Outreach & Technical Assistance - 768-1970
- Pollution Prevention
- Emergency Preparedness
- Community Outreach
- Small Business Assistance
- *The Air Shed* Newsletter

Permitting & Emission Inventories - 768-1930
- Application Review & Permit Issuance
- Permitting Policy / Development
- Ambient Air Dispersion Modeling
- Emission and Pollutant Inventories
- Aerometric Information Retrieval System [AIRS]

Control Strategies- 768-2600
- Development of Air Quality Regulations
- Preparation of State Implementation Plan elements
- Air Quality Control Board
- Review Federal environmental assessments

Public Health Initiatives - 767-5621
- Air Quality Complaints
- Indoor Air

Quality Assurance - 768-1963
- EPA Reporting
- Review & Validation of Data

World's Oceans Absorb Carbon Dioxide

According to a new report released by the National Science Foundation, almost half (48%) of all carbon dioxide released by man's activities (anthropogenic) since the dawn of the industrial revolution has been taken up by the world's oceans.

Most carbon dioxide (CO_2) is produced during the combustion of fossil fuels and is initially released into the atmosphere, where it contributes to global warming by trapping solar radiation. Levels of atmospheric carbon dioxide have risen from about 280 parts per million prior to the industrial revolution, to about 380 parts per million currently. Were it not for the world's oceans also absorbing carbon dioxide, atmospheric CO_2 levels might now be even as much as 55 parts per million higher still.

Most of the carbon dioxide absorbed by the oceans is contained in the upper ten percent of the ocean's depth. Since carbon dioxide is an acidic gas, its introduction to the upper oceans tends to change the water's chemistry. Studies show that, if present rates of carbon absorption continue, ocean surface layer acidity could increase to levels not seen for more than five million years. A change in seawater chemistry that dramatic can have profound impacts on the oceanic flora and fauna. Many of the plants and animals residing in the upper levels of the oceans, such as corals and planktons, rely on calcium carbonate for their shells and exoskeletons. Recent studies indicate that, not only do higher levels of acidity inhibit the formation of calcium carbonate, but, in fact, can dissolve calcium carbonate already formed. As calcium carbonate is dissolved in the upper oceans, the acidity of the ocean is reduced and the ability of the ocean to absorb carbon dioxide is restored. The cycle then repeats itself.

Recent studies have shown that calcification rates can drop by as much as 25 to 45 percent at CO2 levels equivalent to atmospheric concentrations of 700 to 800 parts per million. Those levels will be reached by the end of this century if fossil fuel consumption continues at projected levels. The effects of decreased calcification in microscopic algae and animals could alter marine food webs and, combined with other changes in salinity, temperature and nutrients, could substantially alter the diversity and productivity of the world's oceans.

AIR QUALITY CONTROL BOARD REPORT

Summary of Activities*
July 14, 2004 Meeting of the Albuquerque/Bernalillo County Air Quality Control Board

Members Present:

Dr. Betty Chang, Vice Chair
Dr. Johnnye Lewis
DR. Stephen Pilon
Ms. Sue Umshler, Chair
Ms. Karen Wentworth

Action Items *:

Resolution (2004-4) to adopt proposed amendments to 20.11.100 NMAC, *Motor Vehicle Inspection-Decentralized,* 20.11.102 NMAC, *Oxygenated Fuels*, and subsequent incorporation of both into the State Implementation Plan (SIP): and proposed SIP revision: *Limited Maintenance Plan for Carbon Monoxide (CO): Albuquerque-Bernalillo County, NM.* Passed 4-0.

Reports:

Air Quality Division

Mr. Isreal Tavarez brought the Board up to date on the Division's projects to develop the tools to provide ozone forecasting information to the public, the Division's progress toward re-designing the Division's web pages, and the Division's new pollen count feature on the web. Mr. Tavarez also commented on the status of the Air Aware Campaign, the Division's promotional campaign to inform the public about risks associated with increasing levels of ozone in Bernalillo County.

Mr. Albrecht reported on the completion of the required 2002 emissions inventory, a detailed summary of the souces of air pollution in Albuquerque and vicinity.

Mr. Warren reported on the status of the Programmatic permit program for fugitive dust, including permits workshops, field verifications, public awareness, funding, and the classification handbook.

Mr. Macias reported on the Draft Ozone Report, EPA funding of special projects and the web development committee.

Vehicle Pollution Management Division

Mr. Glen Dennis reported on the status of installation of new vehicle testing equipment in about 110 emissions testing facilities. Mr. Dennis proposed to have orientation/training for Board members at Vehicle Pollution Management Division headquarters in August.

* Action items recorded from draft minutes still subject to Board approval at press time.

Albuquerque / Bernalillo County
Air Quality Control Board

Board Members & Staff
Stephen Pilon, City
Karen Wentworth, County
Johnnye Lewis - County
Sue Umshler - County (Chair)
Betty Chang - City (Vice Chair)
Donald Naranjo - City
Vacant - City

Alfredo Santistevan, Director
Environmental Health Department

Isreal L. Tavarez
Air Quality Division Manager/
Secretary to the Board

Adelia Kearny
Assistant City Attorney

Glen Dennis
Vehicle Pollution Management Division Manager

Jens Deichman
Environmental Planning Commission Liaison

Monthly Board Meetings
Board meetings are usually held the second Wednesday of each month at 5:15 p.m. in the Council/Commission Chambers, lower level, Albuquerque/ Bernalillo County Government Center, 1 Civic Plaza, 400 Marquette Avenue NW Albuquerque, NM.

Agendas, which will show the correct date and meeting place, are generally available three days before the meeting and can be obtained by contacting Mr. Neal Butt at 505-768-2660 or via e-mail at: nbutt@cabq.gov.

Notice to persons with disabilities: If you have a disability and require special assistance to participate in any Board meeting please call the Air Quality Division at 505-768-2600 (Voice) or 505-768-2482 (TTY)

Vehicle Inspection and Maintenance Program

Phase-in of the new Worldwide EIS-5000 BAR97 emissions analyzers was completed in July. To date, one hundred and thirteen (113) Air Care Stations have purchased and activated the new test equipment. Use of the vintage 1995 BAR90 equipment was very limited through June and July and ceased entirely on July 31st. At its peak in 1999 there were over 150 stations in the BAR90 program. Several former stations are still weighing the cost/benefit of participating and several applications have been requested by potential new station. Thus we expect approximately 125 operating BAR97 stations by years end. However, the current number of stations is more than adequate to service the testing needs of Albuquerque area residents.

The new test equipment provides a faster yet more stringent test and will result in significant ozone precursor emissions reductions in the months and years to come. The new On-Board Diagnostic (OBDII) test for 1996 and newer model vehicles is very popular with inspectors and motorists as it is faster and less invasive but more informative than a standard tailpipe test. The new equipment is also able to readily test new technology vehicles which were becoming increasingly difficult and in some cases untestable using the old BAR90 equipment. The principal shortcoming of the new equipment is the noncontact rpm pickup which is very difficult and time consuming to use on certain full size vans. Fortunately, these tests are very rare but they are very frustrating to inspectors and may result in the motorist having to make an extra trip to bring their vehicle to the headquarters station. If the manufacturer is not able to correct the deficiency soon VPMD may require a software update to allow for an rpm bypass on these select few models.

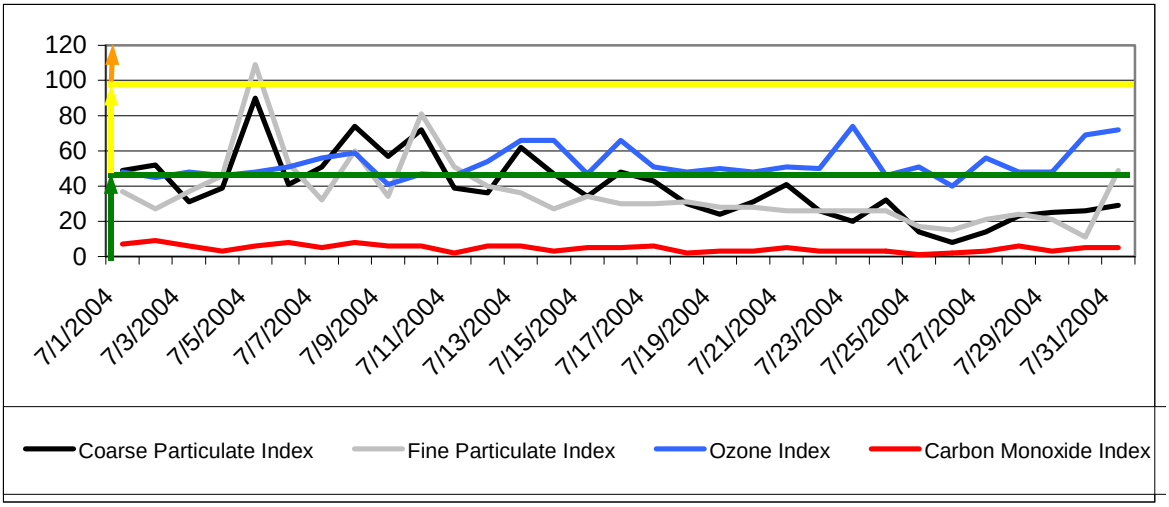
The principal complaint from motorists regarding the new test has been for vehicles that fail due to a faulty gas cap. This is to be expected since it is the most visible new test procedure for older cars. Most vehicles failing for gas caps are 1970s and 1980s era vehicles. The shock has been eased greatly by the gas cap voucher program which has provided $10 towards the replacement of any failing cap. Beginning in June, VPMD issued voucher packs to Air Care Stations so that the vouchers could be given to motorists when and where the vehicle failed. This saved motorists an extra trip to VPMD for a voucher before returning for a retest. All 1600 available vouchers have been issued to the stations at a rate of 5 per 100 test certificates (based on estimated failure rates). We expect that all of the vouchers will have been given away before the August 31st deadline for this EPA grant funded project.

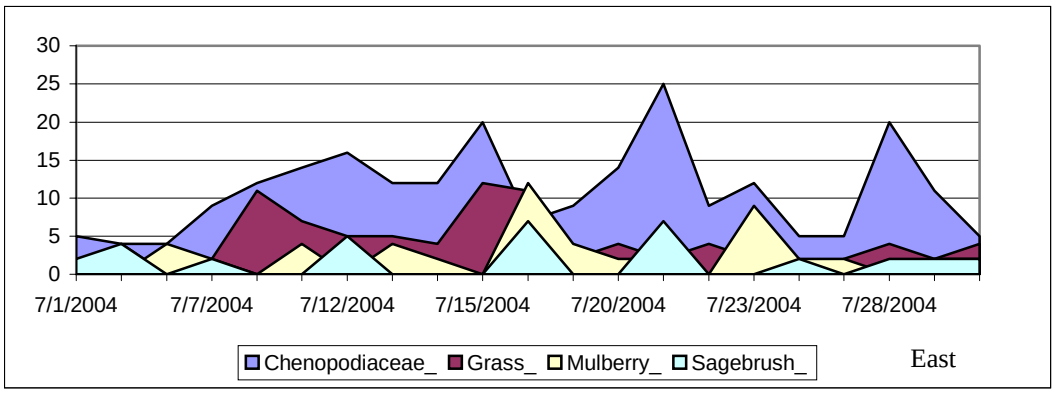
AIR QUALITY DATA FOR JULY, 2004

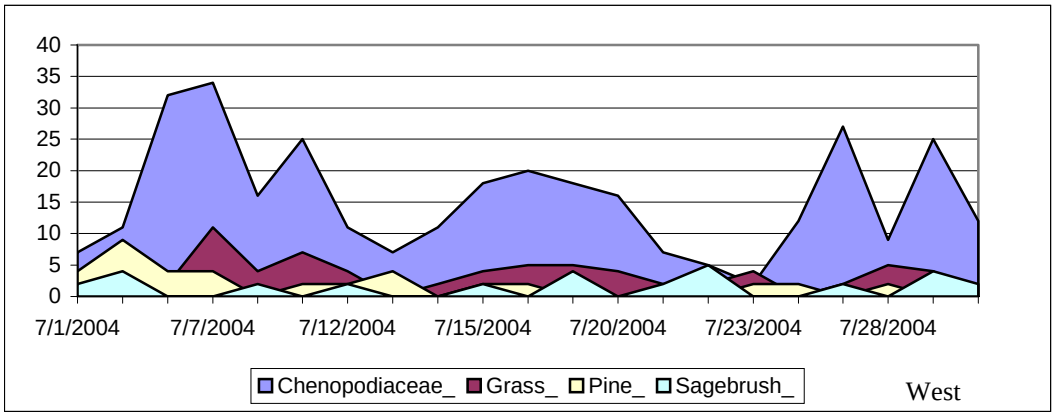
The Air Quality Index [AQI] values indicate how clean or polluted ambient air is, and if there are any health concerns associated with a specific value. The AQI in Bernalillo County is measured for four [4] nationally regulated air pollutants: Carbon Monoxide [CO], Ozone [O_3], Coarse Particulate [PM10] and Fine Particulate [PM2.5].

As shown by the graph below, AQI values were "Good" to "Moderate" in July, which means that air pollutants at this level pose little or no health risks to our community, but those members of our community who already have respiratory problems may be slightly affected. Thus, as the values increase into a higher category, health risks will similarly increase. As you may have guessed, the last category, "Hazardous", with AQI values greater than 300, is very serious and can be detrimental to the health of the whole community even if emergency health warnings are triggered. Call the Air Quality Information Line at 766-7664 or 768-4731 Option 1 to get today's AQI Values.

AIR QUALITY INDEX
Hazardous > 300
Very Unhealthy 201 - 300
Unhealthy 151 - 200
Unhealthy for Sensitive Groups 101 - 150
Moderate 51 - 100
Good 0 - 50







Pollen data is reported Monday - Friday, during the months of March - October. It is reported as grains of pollen per cubic meter of air sampled. Air Quality Monitoring staff collect data from areas east and west of the Rio Grande within the greater Albuquerque metropolitan area. Pollen data from a previous 24-hour sampling period is then published in local newspapers in the weather section, broadcast with local news station weather reports, or can be obtained by calling the **Air Quality Information Line** 766-7664

Monsoon Season Arrives

To most of us the word 'monsoon' conjures up images of exotic, far-away places drenched by seasonal bouts of torrential rains. Visitors to New Mexico often seem amused when locals speak of our monsoon season. The bleak desert landscape seems to belie the existence of a monsoon season. But, to risk the ire of the skeptics, New Mexico **does** have a monsoon season and often it supplies a considerable percentage of our annual precipitation.

Rio Rancho, New Mexico. 8/4/04

Known formally as the North American monsoon (also referred to as the Southwest, Mexican, or Arizona monsoon), it's timely arrival, usually in mid-July in central New Mexico, often signals the welcome end to the wildfire season and also brings relief from sweltering summer temperatures. The vagaries of meteorological prediction have, thus far, made a definitive explanation of the monsoon phenomenon sketchy. Even professional meteorologists struggle to agree on some of the finer points, but this much is known.

The word "monsoon" is derived from the Arabic word "mausim" meaning season. In the strictest sense, the word monsoon refers to a seasonal shift in wind patterns, rather than to precipitation, but thunderstorms do accompany the shifts in the wind patterns. While the term appears to have been coined by ancient traders plying the waters of the Indian Ocean and nearby Arabian Sea, monsoonal flows are not restricted to the Asian continent. Seasonal shifts in wind patterns occur in various places around the world such as Europe, Africa, and the west coasts of South America and the United States.

The sun's energy, and when and how it gets applied to Earth's surface, is at the heart of any weather system, and this includes the monsoon. The summer begins in New Mexico when Earth's movement through its orbit around the sun, combined with its axial tilt, gradually exposes the northern hemisphere more directly to the sun's rays. In New Mexico during early summer, the winds blow predominately from the west, driven by the Earth's rotation, pulling warm, dry continental air masses behind them. Thus, our early summers are characterized by hot, dry, west winds with little or no rainfall (very dusty, too).

As the northern summer season matures, northern continental land masses continue to warm up even more as the southern hemisphere begins to cool down. The jet stream, a fast flowing, westerly air current that takes on a narrow, flattened tube shape--often spanning thousands of miles in length, a hundred miles in width, and one or several miles in height, migrates north as the global energy balance adjusts. The huge, upper level subtropical high pressure system known as the Bermuda High also shifts its position northward. Fundamental circulation patterns change. Winds in New Mexico adjust to the new paradigm by slewing almost ninety degrees southward, and begin to pull warm, moisture-laden air masses from the Gulf of Mexico, and the Gulf of California. These moist air masses are lifted as they travel upslope across the continent, a phenomenon known as orographic lifting. As the air masses are lifted, temperatures and pressures drop, and thunderstorms begin to form.

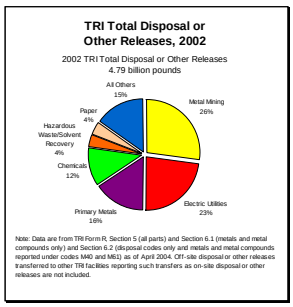
While northern Mexico typically sees the most spectacular storms from the monsoonal flows, significant moisture does funnel into the desert Southwest. The result is enough moisture to dramatically increase the number and severity of New Mexico's thunderstorms. While local mountain/valley air circulation patterns seem to determine the location and timing of individual storms, it's the monsoonal flow that provides most of the moisture.

The North American Monsoon doesn't produce rain every day but, rather, it comes in fits and starts known as "bursts" and "breaks." During the "bursts", weak disturbances in the upper atmosphere act to focus thunderstorm activity over our state for a period of a few days to a week or more. At other times, the monsoonal flows will subside, resulting in a "break" of a few days. During the breaks, opportunities arise for storms to form and sneak in from other influences. These 'other' storms are not considered part of the monsoon as they are fueled by more traditional wind patterns. Meteorologists can argue about which systems are at work at any given time, but it's clear that the monsoonal flows provide a significant amount of the moisture that falls this time of year. Monsoonal storms often produce large amounts of rain in very short timeframes.

By early to mid-September, the sun's rays begin to fall more obliquely onto the surface of the northern hemisphere as Earth's axial tilt begins to favor the southern hemisphere once again. The intense solar heating of summer that was the engine driving the monsoonal flows begins to sputter and stall. Cold fronts begin to push in from the west once again in mid-September. Summer has begun to fade in the desert Southwest and, along with it, the monsoon. Familiar weather patterns begin to re-emerge as fall sets in and the cycle begins anew.

EPA Publishes Toxic Release Inventory

2002 Disposal or Other Releases by Industry



Since 1987, the United States Environmental Protection Agency has collected information on the disposal of or other releases of over 650 chemicals used by industry in the United States and all of its territories. The inventory details the amounts and types of chemicals released as well as the method of disposal. Facilities typically dispose of chemicals by either placing them in surface impoundments, placing them in on-site underground injection wells, or by sending them to landfills. For 2002, the latest year for which data is available, EPA calculates that 24,379 facilities disposed of over 4.79 billion pounds of chemicals.

Of the total 4.79 billion pounds of chemicals disposed of in 2002, 89%, or 4.28 billion pounds was disposed of **on-site** and included 1.63 billion pounds of air emissions, 597 million pounds in Class 1 underground injection wells and landfills. An additional 982 million pounds of waste was disposed of in waste piles, spills and leaks.

The remaining 514 million pounds of waste, or 11%, was disposed of **off-site,** including 273 million pounds to underground injection wells and landfills with the remaining 127 million pounds (predominately metals) being sent for solidification or stabilization.

Chemicals that are disposed of in underground injection wells are injected below the lowest level of groundwater in isolated formations to prevent contamination of the groundwater. Modern landfills also are designed with liners, covers, leak detection systems and groundwater monitoring systems to limit the potential for human exposure and contamination.

The 2002 Toxic Release Inventory (TRI) data are now available online in a sortable, searchable format at http://www.epa.gov/triexplorer. EPA invites you to visit its web site to explore the data base and to learn more about toxic chemical releases and waste management activities across the United States.

Ford Introduces First Hybrid SUV

Ford Motor Company has announced that it has received certification for the first U.S. sport/utility vehicle with gas/electric hybrid technology. The Ford Escape Hybrid has complied with EPA's stringent new emissions standards (AT-PZEV) for light-duty vehicles and trucks, and the 2-wheel drive version is expected to deliver 36 miles per gallon (MPG) in the city and 31 MPG on the highway. The 4-wheel drive version will deliver 33 MPG in the city and 29 MPG on the highway.

This remarkable fuel economy is made possible by the vehicle's hybrid powerplant. The Escape is equipped with both a traditional 2.3 liter, 4-cylinder gasoline engine delivering 133 horsepower, and also with an 87 horsepower electric motor. The vehicle uses one or the other or both powerplants to drive the vehicle as power requirements change through the course of the driving cycle. The Escape even captures the energy normally lost during braking to recharge its batteries (regenerative braking). When demand for power is low, the electric motor takes over to augment or replace the power supplied by the gasoline engine. The vehicle burns less fuel as a result. It will be possible to drive this vehicle almost 500 miles before refueling. A 330-volt Nickel-Metal-Hydride battery pack located and sealed beneath the rear load floor supplies power to the electric powerplant.

Ford claims that the hybrid SUV has acceleration performance comparable to a V6 powered vehicle. The Escape Hybrid automatically switches between pure electric, pure gasoline, or combined operation to maximize efficiency and performance for any driving circumstance. No special knowledge or driving techniques are required. Exhaust emissions are lower than nearly all other vehicles on the market. There is no need to plug in because the vehicle's batteries are automatically recharged during driving. The vehicle uses regular unleaded fuel.

The Escape Hybrid is a "full hybrid", meaning it can run solely on electric power when the batteries are fully charged. So-called "semi-hybrids" only supplement the power of the gasoline engine with electric power and, thus aren't nearly as efficient as the Escape. The Escape is available for purchase this summer.